SOUTHWEST FISHERIES SCIENCE CENTER
SECOND QUARTER REPORT-FY 2002
For the Period January 1 - March 31, 2002

Submitted By: John Hunter, Director, Fisheries Resources Division.

Title of Accomplishment or Milestone: Model Development for North Pacific Albacore.

Current Status of Accomplishment or Milestone: Model development and the requisite database preparation needed for model implementation are well underway. The joint modelling effort – with Japanese and Taiwanese colleagues – was reported upon in February 2002 at an intersessional meeting of the North Pacific Albacore Workshop in Nagasaki, Japan. The first phase implementation of the full model is expected in December 2002.

Background: The North Pacific Albacore Workshop (NPALBW) was established in 1974 by informal agreement between the Southwest Fisheries Science Center, National Marine Fisheries Service (U.S.A.) and the National Research Institute of Far Seas Fisheries (Japan). The Workshop was conceived to promote and accelerate joint research on north Pacific albacore, particularly through exchange of data and information and collaborative research. In 1982, the Pacific Biological Station, Department of Fisheries and Oceans (Canada) joined the agreement as a sponsoring member, and in 1991 the Institute of Oceanography, National Taiwan University (Republic of China) became a sponsoring member. Through this agreement, the parties have cooperated and coordinated their research on highly migratory albacore of the North Pacific Ocean. This cooperation includes annual exchange of fishery statistics, exchange of research plans, review of research results and joint determination of stock condition. A regular scientific Workshop is organized to review research findings, assess the conditions of the stock and coordinate research planning.

Purpose of Activity: Cooperative research on alternative stock assessment modelling was an important research recommendation from the 17th North Pacific Albacore Workshop (Taipei, Taiwan; December 2000). This activity represents the beginning of a multi-year effort designed to enhance north Pacific albacore stock assessment and management advice.

Description of Accomplishment and Significant Results: Age-structured modelling is the primary stock assessment tool used for north Pacific albacore assessment. This research represents the first attempt to explore length-based modelling for albacore in the north Pacific. Data requirements for length-based modelling are much more substantial and detailed than those for traditional age-based modelling. Furthermore, the mathematical complexity and the computational power needed to execute these models are greatly increased. Length-based catch, size-frequency, and fishing effort statistics (1975-2000) have been compiled for some 26 international albacore fisheries across the north Pacific. A preliminary modelling framework has been established that will have reasonable run times on high-end, MS Windows-based workstations.

Significance of Accomplishment (e.g., to the Center, to Management, and to NMFS

Strategic Plan Goals): The SWFSC has the mandate for north Pacific albacore stock assessment and has accomplished this internationally through the NPALBW since 1974. In addition, NMFS and the SWFSC, in particular, have the mandate to provide scientific support for the PFMC in implementing its Fishery Management Plan for Pacific Highly Migratory Species, including albacore. This research effort -- accomplished in cooperation with Japanese and Taiwanese scientists -- represents an important part of these mandates, and fosters vital scientific collaboration with international tuna scientists.

Problems: None

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